

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2002-242950
 (43)Date of publication of application : 28.08.2002

(51)Int.Cl. F16D 3/68
 F16F 15/136

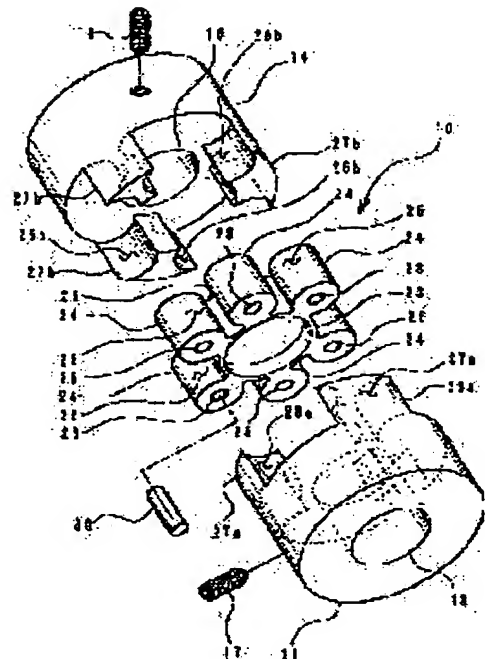
(21)Application number : 2001-275989 (71)Applicant : ASA DENSHI KOGYO KK
 (22)Date of filing : 12.09.2001 (72)Inventor : ASA YUKIHIRO

(30)Priority
 Priority number : 2000377179 Priority date : 12.12.2000 Priority country : JP

(54) SHAFT COUPLING**(57)Abstract:**

PROBLEM TO BE SOLVED: To provide a rubber shaft coupling at a low cost, which absorbs vibrations, impacts and noises, implements electrical insulation between two shafts, eliminates the need for lubrication, and has excellent durability.

SOLUTION: A center hub 23 of the rubber shaft coupling 10 is sandwiched between discs 11, 14 fixed respectively on a driving shaft side and a driven shaft side, concentrically matched with them, and is engaged with both of the discs 11, 14 to transmit rotations. Pillar portions 24 of which shapes are the same as the center hub 23 are disposed and connected around an outer periphery of the center hub 23. The discs 11, 14 different from each other have projections 27a, 27b with engaging faces 26a, 26b. Side faces 25 of the pillar portions 24 are closely attached on the engaging faces 26a, 26b to be in the shape so that the engaging faces 26a, 26b and the pillar portion 24 are complimented with each other. Therefore, compressive stress caused by the shift of an axial center is disposed.

**LEGAL STATUS**

[Date of request for examination]
 [Date of sending the examiner's decision of rejection]
 [Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]
 [Date of final disposal for application]
 [Patent number]
 [Date of registration]
 [Number of appeal against examiner's decision of rejection]
 [Date of requesting appeal against examiner's decision of rejection]
 [Date of extinction of right]

BEST AVAILABLE COPY

*** NOTICES ***

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.*** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] The central hub where are the shaft coupling which is fastened between the disks fixed to each axis end which a driving shaft and a follower shaft counter, is adjusted by this alignment, engages with said both disks, and transmits rotation, and the die length of shaft orientations is shorter than a dimension, The shaft coupling characterized by having consisted of the even cylinder sections formed at equal intervals successively by the periphery of this central hub at the radial, having arranged the axis of this cylinder section, and the axis of said central hub in parallel, having arranged the die length of shaft orientations identically and forming it.

[Claim 2] It is the shaft coupling according to claim 1 which the engagement section of said mutually different disk is located in the both sides of the side face in which said each of cylinder section is engaged, and is characterized by carrying out fitting of said cylinder section and engagement section of said disk densely in the configuration complemented mutually.

[Claim 3] The shaft coupling according to claim 1 characterized by forming said cylinder section in a solid.

[Claim 4] The shaft coupling according to claim 1 characterized by preparing a part for a centrum in said cylinder section.

[Claim 5] The shaft coupling according to claim 4 characterized by filling up a part for the centrum of said cylinder section with the material for which degrees of hardness differ.

[Claim 6] The shaft coupling according to claim 4 or 5 characterized by being filled up with the material of a path which becomes cylindrical from the path size a little about a part for the centrum of said cylinder section at a part for nothing and this centrum.

[Claim 7] It is fastened between the disks fixed to each axis end which a driving shaft and a follower shaft counter, and this alignment has consistency. It is the shaft coupling which engages with said both disks and transmits rotation to a follower shaft from a driving shaft. It is the shaft coupling which it consists of even cylinder members, and the engagement section of said mutually different disk is located in the both sides of the side face in which this each of cylinder member is engaged, and is characterized by carrying out fitting of the engagement section of a cylinder member and said disk to the configuration complemented mutually densely.

[Claim 8] Said cylinder member is a shaft coupling according to claim 7 characterized by performing beveling to the both-ends surface part.

[Claim 9] It is the shaft coupling according to claim 7 which establishes a screw hole in the end face which counters each of the engagement section of said disk, and is characterized by forming these screw holes successively with the hole from opening of the above-mentioned end face and the field of the opposite side.

[Translation done.]

* NOTICES *

JPO and NCIP are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.*** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to amelioration of the bending joint using especially a compression set with respect to the shaft coupling which transmits power.

[0002]

[Description of the Prior Art] A shaft coupling is used for the axis to tell movement to the second shaft which is in agreement in approximation with the same rotational speed from a certain shaft, a rigid shaft coupling of structure with which shaft-coupling components have got into gear mutually continuously during the drive, or its shaft-coupling component can be removed, or it is the clutch of the structure which can be switched and this invention belongs to the former.

[0003] (a) is the sectional view where drawing 4 met the A-A line of (b) with the conventional rubber shaft coupling 105, and the sectional view where (b) met the B-B line of (a). The rubber shaft coupling 105 is fastened through a flange 103,104 between two shafts 101,102, and it is engaged by turns [the click 108,109 and by turns] which project from the flange 103,104 of both sides in the flat-surface projection 107 prepared in the radial from the hub 106.

[0004] Moreover, drawing 5 is the shaft in which the rubber shaft coupling 205 of another conventional example is shown, and a right-angled top view. The rubber shaft coupling 205 differs from the above-mentioned conventional example at the point which made the cross section of the radial projection which protruded on the hub 206 the shape of a drum. any rubber shaft coupling 105,205 is easy structure, and absorbing vibration, an impact, the noise, etc., electric insulation's being obtained between two shafts, and lubrication are unnecessary — etc. — there is an advantage.

[0005]

[Problem(s) to be Solved by the Invention] Generally most rigid shaft couplings, i.e., the shaft coupling with which shaft-coupling components are combined mutually firmly, are not seen. When the most, in order to accustom the inequality of an axis location, and change rather, shaft-coupling components need to enable it to move somewhat relatively. Since this compensates the difference in the axial center produced by the inaccuracy in the case of an assembly, and wear of bearing to some extent, it may have various possibility like that it can move in the direction of an axis, that it can move to radial, or leaning an axis again.

[0006] However, if it sees about two revolving shafts with a cardiac gap of Δ when it thinks on the assumption that these as it is shown in drawing 6 for example In the rubber shaft coupling 105 of drawing 6 (a), since the radial projection 107 of a periphery is a flat surface When the component of a force of a tangential direction does not act on the projection 107 (not shown) parallel to the gap direction, but the component of a force f_1 of a tangential direction produces it from the time of inclining to the gap direction at it and it becomes the gap direction and a perpendicular, shear stress p becomes the component of a force f_2 of a tangential direction as it is at projection 107.

[0007] Moreover, if it is in the projection 207 of the shape of a cross-section drum of drawing 6 (b), shear stress p becomes tangential force as it is, and the component-of-a-force burden f_4 of a tangential direction acts on projection 207, when perpendicular to ***** and the gap direction, as component of a force f_3 has arisen in the tangential direction and the inclination of the projection 207 to the gap direction increases whenever further, also when parallel to the gap direction. Component of a force f_5 does not participate in a compression operation by the coplanar force. That is, if the conventional example of drawing 4 and drawing 5 is compared, since stress will distribute also to the projection of others [direction / of the drum-like projection 207], it turns out that the burden by the shear stress concerning the projection 107,207 which has turned to the location perpendicular to the gap direction is few.

[0008] Thus, although the compressive stress f produced in a tangential direction joins the turning effort transmitted during rotation to projection 107 in process of rotation with the stress p by cardiac gap, since magnitude changes with rotation locations of projection 107 and the ingredient fatigue by repeated stress generates this compressive stress f , the endurance or the life of a rubber shaft coupling becomes a problem. Since it is a device especially with little noise, before noticing, fatigue advances, sudden fatigue breaking is caused and ***** danger is about the serious damage for other rolling mechanisms.

[0009] Then, the purpose of this invention is offering the shaft coupling excellent in endurance by low cost.

[0010]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the shaft coupling concerning this invention The central hub where are the shaft coupling which is fastened between the disks fixed to each axis end which a driving shaft and a follower shaft counter, is adjusted by this alignment, engages with said both disks, and transmits rotation, and the die length of shaft orientations is shorter than a dimension. It consists of the even cylinder sections formed at equal intervals successively by the periphery of this central hub at the radial, and the axis of this cylinder section and the axis of said central hub are arranged in parallel, and let it be a summary to have arranged the die length of shaft orientations identically and to have formed it.

[0011] The engagement section of said mutually different disk is located in the both sides of the side face in which said each of cylinder section is engaged, and fitting of said cylinder section and engagement section of said disk is densely carried out in the configuration complemented mutually. Said cylinder section may be formed in a solid and may prepare a part for a centrum. Moreover, a part for the centrum of said cylinder section may be filled up with the material for which degrees of hardness differ. Or a part for this centrum may be filled up with the material of a bigger path a little than the path of nothing and its part as it is cylindrical.

[0012] Furthermore, other shaft couplings of this invention are fastened between the disks fixed to each axis end which a driving shaft and a follower shaft counter, and are adjusted by this alignment. It is the shaft coupling which engages with said both disks and transmits rotation to a follower shaft from a driving shaft. It consists of even cylinder members, the engagement section of said mutually different disk is located in the both sides of the side face in which this each of cylinder member is engaged, and the engagement section of a cylinder member and said disk makes it a summary to carry out fitting to the configuration complemented mutually densely. In the above-mentioned shaft coupling, a screw hole may be established in the end face which said cylinder member may bevel to a both-ends surface part, and counters each of the engagement section of said disk, and this screw hole may be constituted as formed successively with the hole from opening of the above-mentioned end face and the field of the opposite side.

[0013]

[Embodiment of the Invention] The gestalt of operation of the shaft coupling concerning this invention is explained based on a drawing below. The perspective views and drawing 2 which show one example of the shaft coupling 10 concerning this invention in drawing 1 are an axis in the example of drawing 1, and a right-angled side elevation. And drawing 3 is the sectional view which met three to 3 line of drawing 2. In drawing 1 - drawing 3, the disk in which the bore 13 to which 11 fits into a driving shaft 12 was formed, and 14 are the disks in which the bore 16 which fits into the follower shaft 15 was formed, and consist of same geometries except the shaft diameter which each applies. The push screws 17 and 18 or keys 19 and 20 are suitable fixed means, and disks 11 and 14 are fixed to each shaft 12 and 15.

[0014] A shaft coupling 10 may be a multiple column, although it consists of the one shaping member made of rubber and the configuration of the central hub 23 is illustrated by the cylinder by a diagram. It is regular intervals, for example, the cylinder sections 24 of the isomorphism of six pieces are formed successively by the periphery of the central hub 23 at a radial. The central hub 23 and the cylinder section 24 make an axis parallel, arrange shaft orientations with the same die length (thickness), and really fabricate them with the rubber of the proper degree of hardness which suits transfer torque. The number and the dimension of the cylinder section 24 are suitably chosen by the shaft diameter of a driving shaft 12 or the follower shaft 15, the outer diameter of disks 11 and 14, or transfer torque.

[0015] The projections 27a and 27b which the appearance of each disks 11 and 14 was formed in the same configuration, and formed the engagement sides 26a and 26b of the isomorphism which complements the cylinder section side face 25 of a shaft coupling 10 are arranged at equal intervals as the engagement section at a radial at the opposed face of each disks 11 and 14. The both sides of the cylinder section side face 25 of the rubber shaft coupling 10 are pinched by the projections 27a and 27b of mutually different disks 11 and 14. The engagement sides 26a and 26b of the projections 27a and 27b of disks 11 and 14 stick the perimeter of the rubber shaft-coupling cylinder section 24, and it performs torque transmission so that it may be illustrated. Therefore, the compressive stress by cardiac gap is distributed by the periphery of the rubber shaft coupling 10, and concentrating on a specific angle-of-rotation part is avoided.

[0016] Moreover, as a two-dot chain line shows, a centrum 28 can be formed in each cylinder section 24, wall thickness t can be changed variously, and compression deformation can be adjusted. Furthermore, compression deformation can be changed and it can be simply made adapted for use torque by embedding the packing 30 of the ingredient with which degrees of hardness differ into a centrum 28. In this case, compression deformation is changeable also by embedding the packing 30 of a path which becomes cylindrical from nothing and its path size a little about a centrum 28.

[0017] Drawing 7 is the perspective view showing other examples of the shaft coupling of this invention, and expresses a member and a part the same [the same sign as drawing 1], or similar. drawing 7 — setting — a shaft coupling — ten — ' — for example, — rubber — make — six — a piece — a cylinder — a member — 24 — ' — from — changing — the — the number — and — a dimension — a driving shaft — 12 — a follower — a shaft — 15 — a shaft diameter — a disk — 11 — 14 — an outer diameter — or — transfer — torque — suitably — choosing — having . In addition, 28' is a centrum and 30' is packing.

[0018] As mentioned above, the appearance of each disks 11 and 14 is formed in the same configuration, and the projections 27a and 27b in which the engagement sides 26a and 26b of the isomorphism which complements cylinder member side-face 25 of shaft-coupling 10" were formed are arranged at equal intervals as the engagement section

at the radial at the opposed face of each disks 11 and 14. The both sides of cylinder member side-face 25' which constitutes a shaft coupling 10 are pinched by the projections 27a and 27b of mutually different disks 11 and 14. The engagement sides 26a and 26b of the projections 27a and 27b of disks 11 and 14 stick the perimeter of cylinder member 24', and it performs torque transmission. Cylinder member 24' which constitutes shaft-coupling 10' is not limited to the product made of rubber, if it is an ingredient with flexibility, anything, is good and an assembly not only becomes easy, but it can make the recess over the angle of deviation by performing beveling 31 to a both-ends surface part, as shown in drawing 8.

[0019] Furthermore, screw hole (33a) 33b is prepared in end-face (32a) 32b which counters each of engagement section (27a) 27b of disks 11 and 14, and these screw holes are formed [end face / above-mentioned] successively with hole 35b from opening 34b of the field of the opposite side. This is utility when disassembling a shaft coupling. That is, since the tip of a rod 37 presses each engagement section end face by inserting the rod 37 which has the screw section 36 as shown in drawing 9 into hole 35b from opening 34b, and making the screw section 36 screw in screw hole 33b, the assembled shaft coupling can be disassembled easily. In addition, at least two above-mentioned screw holes are good to prepare in a location which is mutually different about 180 degrees.

[0020]

[Effect of the Invention] absorbing vibration, an impact, the noise, etc. at the above explanation according to the shaft coupling concerning this invention so that clearly, electric insulation's being obtained between two shafts, and lubrication are unnecessary — etc. — with an advantage maintained, by having used the engagement part of a shaft coupling as the cylinder, rotation stress is distributed and endurance improves. Moreover, by making the cylinder member of a shaft coupling hollow, changing wall pressure or embedding the packing with which a degree of hardness differs from a path inside, compression deformation can be adjusted variously and it can respond to various transfer torque easily. Furthermore, since the pair of the engaged partner disk is of the same type and can be fabricated, it is efficiently producible. Furthermore, if said even cylinder members are used as a shaft coupling, without using metal mold, since there is no central hub, from the round bar etc., but only cutting can be manufactured easily, and moreover the degree's of freedom of a design improves, and it can make that it is still cheaper.

[Translation done.]

* NOTICES *

JPO and NCIP are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.*** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the perspective view showing one example of the shaft coupling concerning this invention.

[Drawing 2] They are an axis in the example of drawing 1 , and a right-angled side elevation.

[Drawing 3] It is the sectional view which met three to 3 line of drawing 2 .

[Drawing 4] The sectional view where (a) met the A-A line of (b), and (b) are the sectional views which met the B-B line of (a) in the conventional rubber shaft coupling.

[Drawing 5] They are the axis which shows another example of the conventional rubber shaft coupling, and a right-angled side elevation.

[Drawing 6] It is the explanatory view showing the operation condition of the turning effort in the conventional rubber shaft coupling.

[Drawing 7] It is the perspective view showing other examples of this invention.

[Drawing 8] It is drawing showing an example of the cylinder member used for the example of drawing 7 .

[Drawing 9] It is drawing showing an example of the rod for decomposition of a shaft coupling.

[Description of Notations]

10 Shaft Coupling

11 Disk

12 Driving Shaft

14 Disk

15 Follower Shaft

23 Central Hub

24 Cylinder Section

24' Cylinder member

25 Cylinder Section Side Face

26 Engagement Side

27 Projection

30 Packing

[Translation done.]

(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号
特開2002-242950
(P2002-242950A)

(43) 公開日 平成14年8月28日 (2002.8.28)

(51) Int.Cl. ⁷	識別記号	F I	テーマコード(参考)
F 1 6 D 3/68		F 1 6 D 3/68	
F 1 6 F 15/136		F 1 6 F 15/136	B

審査請求 未請求 請求項の数9 O L (全 6 頁)

(21) 出願番号 特願2001-275989(P2001-275989)
(22) 出願日 平成13年9月12日 (2001.9.12)
(31) 優先権主張番号 特願2000-377179(P2000-377179)
(32) 優先日 平成12年12月12日 (2000.12.12)
(33) 優先権主張国 日本 (J P)

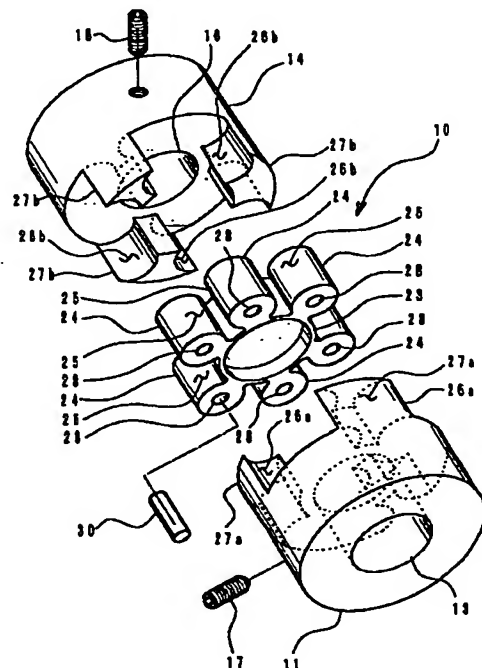
(71) 出願人 593182381
アサ電子工業株式会社
東京都小平市小川東町5-16-8
(72) 発明者 麻 幸啓
東京都小平市小川町5-16-8 アサ電子
工業株式会社内
(74) 代理人 100072383
弁理士 永田 武三郎

(54) 【発明の名称】 軸継手

(57) 【要約】

【課題】 振動、衝撃、騒音などを吸収し、二軸の間に電気絶縁が得られ、潤滑が不要で、耐久性に優れたゴム軸継手を低コストで提供する。

【解決手段】 駆動軸側と従動軸側それぞれに固定した円板11、14の間に挟装されて同心に整合され、円板11、14の両方と係合して回転を伝達するゴム軸継手10の中央ハブ23には外周に同形の円柱部24が連設され、円柱部24の側面25には互いに異なる円板11、14の突起27a、27bに設けた係合面26a、26bが円柱部24と補完し合う形状で密着して、軸心のずれによる圧縮応力を分散する。



【特許請求の範囲】

【請求項1】 駆動軸および従動軸の対向する軸端それぞれに固定した円板の間に挟装されて同心に整合され、前記円板の両方と係合して回転を伝達する軸継手であって、外形寸法より軸方向の長さが短い中央ハブと、この中央ハブの外周に放射状に等間隔で連設された偶数個の円柱部とからなり、この円柱部の軸線と前記中央ハブの軸線とを平行に配列し、軸方向の長さを同一に揃えて形成したことを特徴とする軸継手。

【請求項2】 前記円柱部それぞれが係合する側面の両側には互いに異なる前記円板の係合部が位置し、前記円柱部と前記円板の係合部は互いに補完する形状で密に嵌合されることを特徴とする請求項1に記載の軸継手。

【請求項3】 前記円柱部を中実に形成したことを特徴とする請求項1に記載の軸継手。

【請求項4】 前記円柱部に中空部分を設けたことを特徴とする請求項1に記載の軸継手。

【請求項5】 前記円柱部の中空部分を硬度の異なる素材で充填したことを特徴とする請求項4に記載の軸継手。

【請求項6】 前記円柱部の中空部分を円柱状となし、該中空部分にその径より若干大なる径の素材を充填したことを特徴とする請求項4又は5に記載の軸継手。

【請求項7】 駆動軸および従動軸の対向する軸端それぞれに固定した円板の間に挟装されて同心に整合され、前記円板の両方と係合して駆動軸より従動軸へ回転を伝達する軸継手であって、偶数個の円柱部材からなり、該円柱部材それぞれが係合する側面の両側には互いに異なる前記円板の係合部が位置し、円柱部材と前記円板の係合部は互いに補完する形状に密に嵌合されることを特徴とする軸継手。

【請求項8】 前記円柱部材は両端面部に面取りが施されていることを特徴とする請求項7に記載の軸継手。

【請求項9】 前記円板の係合部のそれぞれに対向する端面にネジ穴を設け、該ネジ穴は上記端面と反対側の面の開口からの穴と連設されていることを特徴とする請求項7に記載の軸継手。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】 本発明は動力を伝達する軸継手に係わり、特に圧縮変形を利用した撓み継手の改良に関する。

【0002】

【従来の技術】 軸継手は、ある軸からその軸線が近似的に一致する第二の軸に同一の回転速度で運動を伝えるのに使われ、軸継手部品が駆動中絶えず相互にかみあっているような構造の固定軸継手か、あるいは、その軸継手部品が取り外しできたり、切換できるような構造のクラッチで、本発明は前者に属するものである。

【0003】 図4は、従来のゴム軸継手105で(a)

は(b)のA-A線に沿った断面図、(b)は(a)のB-B線に沿った断面図である。二本の軸101、102の間にフランジ103、104を介してゴム軸継手105が挟装され、ハブ106から放射状に設けた平面突起107に両側のフランジ103、104から突出するつめ108、109と交互に係合している。

【0004】 また図5は別の従来例のゴム軸継手205を示す軸と直角な平面図である。ゴム軸継手205は、ハブ206に突設した放射状突起の断面を太鼓状とした点で上記従来例と異なる。いずれのゴム軸継手105、205も構造が簡単であり、振動、衝撃、騒音などを吸収することと、二軸の間に電気絶縁が得られること、潤滑が不要であるなどの利点がある。

【0005】

【発明が解決しようとする課題】 一般に固定軸継手つまり、軸継手部品が相互に強固に結合されている軸継手は殆どみられない。むしろ、大抵の場合、軸線位置の不一致や変化をならすために、軸継手部品がある程度相対的に動けるようにする必要がある。これは、組立ての際の不正確さや、軸受の摩耗により生じた軸心の違いをある程度補償するため、軸線方向に動けることや、半径方向に動けることや、また軸線を傾けることのようないろいろな可能性があり得る。

【0006】 しかしながら、これらを前提に考えると、図6に示されるように、例えば Δd の心ずれがある二本の回転軸についてみると、図6(a)のゴム軸継手105では外周の放射状突起107が平面であるから、ずれ方向と平行な突起107(図示しない)には接線方向の分力は作用せず、ずれ方向に対して傾斜した時点から接線方向の分力 f_1 が生じ、ずれ方向と垂直になった時点で、突起107にはずれ応力 p がそのまま接線方向の分力 f_2 となる。

【0007】 また、図6(b)の断面太鼓状の突起207にあっては、ずれ方向と平行なときも接線方向に分力 f_3 が生じており、さらにずれ方向に対する突起207の傾斜が度を増すにつれて接線方向の分力負担 f_4 は増し、ずれ方向と垂直な時点では、突起207にはずれ応力 p がそのまま接線力となって作用する。分力 f_5 は平面力で圧縮作用には関与しない。すなわち、図4と図5の従来例を比較すると、太鼓状突起207の方が他の突起にも応力が分散するので、ずれ方向と垂直な位置に回ってきた突起107、207にかかるずれ応力による負担は少ないことが分かる。

【0008】 このように、回転中に伝達する回転力には、心ずれによる応力 p で接線方向に生じる圧縮応力 f が、回転の過程で突起107に対して加わるが、この圧縮応力 f は、突起107の回転位置によって大きさが異なり、繰返し応力による材料疲労が発生するので、ゴム軸継手の耐久性または寿命が問題になる。特に騒音が少ない機構であるから、気付かないうちに疲労が進行して

突然の疲労破壊を招き他の回転機構に重大な損傷をおよぼす危険性もある。

【0009】そこで本発明の目的は、耐久性に優れた軸継手を低コストで提供することである。

【0010】

【課題を解決するための手段】上記の目的を達成するために、本発明に係わる軸継手は、駆動軸および従動軸の対向する軸端それぞれに固定した円板の間に挟装されて同心に整合され、前記円板の両方と係合して回転を伝達する軸継手であって、外形寸法より軸方向の長さが短い中央ハブと、この中央ハブの外周に放射状に等間隔で連設された偶数個の円柱部とからなり、この円柱部の軸線と前記中央ハブの軸線とを平行に配列し、軸方向の長さを同一に揃えて形成したことを要旨とする。

【0011】前記円柱部それぞれが係合する側面の両側には互いに異なる前記円板の係合部が位置し、前記円柱部と前記円板の係合部は互いに補完する形状で密に嵌合される。前記円柱部は中実に形成してもよく、中空部分を設けてもよい。また、前記円柱部の中空部分を硬度の異なる素材で充填してもよい。或いは、該中空部分を円柱状となし、その部分の径よりも若干大きな径の素材を充填してもよい。

【0012】更に本発明の他の軸継手は、駆動軸および従動軸の対向する軸端それぞれに固定した円板の間に挟装されて同心に整合され、前記円板の両方と係合して駆動軸より従動軸へ回転を伝達する軸継手であって、偶数個の円柱部材からなり、該円柱部材それぞれが係合する側面の両側には互いに異なる前記円板の係合部が位置し、円柱部材と前記円板の係合部は互いに補完する形状に密に嵌合されることを要旨とする。上記軸継手において、前記円柱部材は両端面部に面取りを施してもよく、また前記円板の係合部のそれぞれに対向する端面にネジ穴を設け、該ネジ穴は上記端面と反対側の面の開口からの穴と連設されているように構成してもよい。

【0013】

【発明の実施の形態】以下に本発明に係わる軸継手の実施の形態を図面に基づいて説明する。図1は本発明に係わる軸継手10の一実施例を示す斜視図、図2は図1の実施例における軸線と直角な側面図である。そして、図3は図2の3-3線に沿った断面図である。図1～図3において、11は、駆動軸12に嵌合する内径13を形成した円板、14は、従動軸15に嵌合する内径16を形成した円板で、いずれも適用する軸径以外は同じ形状寸法で構成される。円板11、14は押しネジ17、18またはキー19、20など適当な固定手段で、それぞれの軸12、15に固定される。

【0014】軸継手10は、例えば、ゴム製の一体成形部材から成り、中央ハブ23の形状が図では円柱で図示されているが、多角柱であってもよい。中央ハブ23の外周に放射状に等間隔で、例えば六個の同形の円柱部2

4が連設される。中央ハブ23および円柱部24は軸線を平行にして軸方向を同じ長さ（厚み）に揃え、伝達トルクに適合する適正な硬度のゴムで一体成形する。円柱部24の個数および寸法は、駆動軸12や従動軸15の軸径や円板11、14の外径あるいは伝達トルクによって適宜選択される。

【0015】各円板11、14の外形は同一形状に形成され、軸継手10の円柱部側面25を補完する同形の係合面26a、26bを形成した突起27a、27bが各円板11、14の対向面に係合部として放射状に等間隔で配置される。ゴム軸継手10の円柱部側面25の両側は、互いに異なる円板11、14の突起27a、27bによって挟持される。図示されるように、ゴム軸継手円柱部24の周囲は円板11、14の突起27a、27bの係合面26a、26bが密着してトルク伝達を行う。従って、ゴム軸継手10の外周には心ずれによる圧縮応力が分散され、特定の回転角度部位に集中することは避けられる。

【0016】また、二点鎖線で示すように各円柱部24に中空部28を設け、壁厚tをいろいろに変化させて圧縮変形量を調整することができる。さらに、中空部28の中に硬度の異なる材料の詰物30を埋入することによって、圧縮変形量を変え、簡単に使用トルクに適応させることができる。この場合、中空部28を円柱状となし、その径よりも若干大なる径の詰物30を埋入することによっても圧縮変形量を変えることができる。

【0017】図7は本発明の軸継手の他の実施例を示す斜視図で、図1と同一符号は同一又は類似の部材および部分を表わす。図7において、軸継手10'は、例えば、ゴム製の6個の円柱部材24'から成り、その個数および寸法は、駆動軸12や従動軸15の軸径や円板11、14の外径あるいは伝達トルクによって適宜選択される。なお、28'は中空部、30'は詰物である。

【0018】前述したように各円板11、14の外形は同一形状に形成されており、軸継手10'の円柱部材側面25'を補完する同形の係合面26a、26bを形成した突起27a、27bが各円板11、14の対向面に係合部として放射状に等間隔で配置されている。軸継手10'を構成する円柱部材側面25'の両側は、互いに異なる円板11、14の突起27a、27bによって挟持される。円柱部材24'の周囲は円板11、14の突起27a、27bの係合面26a、26bが密着してトルク伝達を行う。軸継手10'を構成する円柱部材24'は、ゴム製に限定されるものではなく、可撓性のある材料なら何でもよく、また図8に示すように両端面部に面取り31を施すことにより組立てが容易になるばかりでなく、偏角に対する逃げを作ることでもある。

【0019】更に円板11、14の係合部（27a）27bのそれぞれに対向する端面（32a）32bにネジ穴（33a）33bを設け、これらネジ穴は上記端面と

10

20

30

40

50

[0 0 2 0]

【図面の簡単な説明】

*

【図3】図2の3-3線に沿った断面図である。

【図5】従来のゴム軸継手の別の実施例を示す軸線と直
角な側面図である。

【図6】従来のゴム軸継手における回転力の作用状態を示す説明図である。

【図 7】本発明の他の実施例を示す斜視図である。

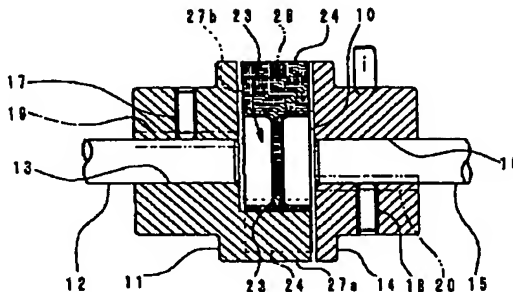
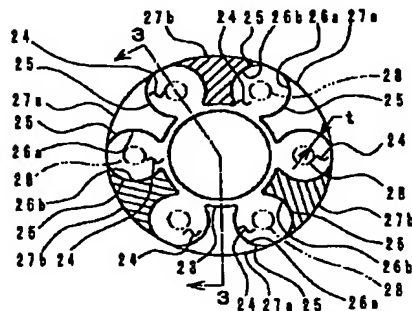
【図8】図7の実施例に使用する円柱部材の一例を示す図である。

【図9】軸継手の分解用ロッドの一例を示す図である。

【符号の説明】

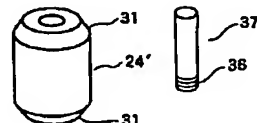
- 10 軸継手
11 円板
12 駆動軸
14 円板
15 従動軸
23 中央ハブ
24 円柱部
24' 円柱部材
25 円柱部側面
26 係合面
27 突起
30 詰物

【图3】

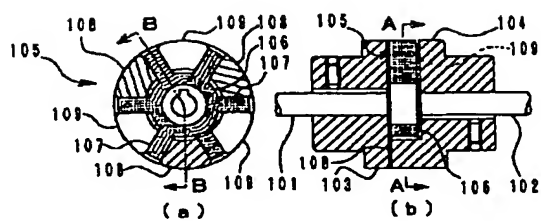


【圖 8】

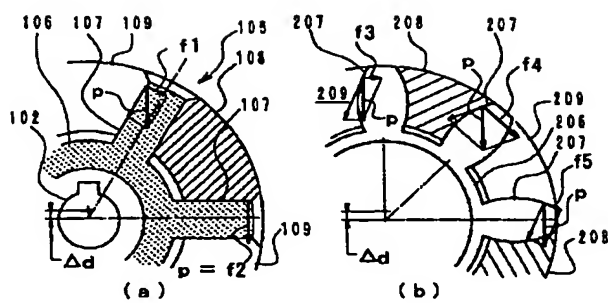
【圖9】



【圖4】



【図6】



This diagram shows an exploded perspective view of a mechanical assembly 10. The assembly includes a main housing 11 with a top flange 14 and a bottom flange 13. A central shaft 16 is shown with a spring 17 and a nut 18. A series of rollers 24, 25, 26, and 27 are arranged in a row, with their respective inner and outer diameters labeled (e.g., 24', 24, 25', 25, 26', 26, 27', 27). A pin 30 is shown passing through the rollers. A spring 34 is shown at the bottom, with a nut 35 and a pin 33. A pin 34a is shown passing through the bottom flange 13. A pin 34b is shown passing through the top flange 14. A pin 35b is shown passing through the top flange 14. A pin 33b is shown passing through the top flange 14. A pin 34a is shown passing through the bottom flange 13. A pin 34b is shown passing through the top flange 14. A pin 35b is shown passing through the top flange 14. A pin 33b is shown passing through the top flange 14.

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☐ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.